

PATENT
Serial No. 09/614,810
Amendment in Reply to Office Action of December 6, 2005

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of embedding auxiliary data (XD) in an information signal (MP), comprising the step of modifying selected signal samples so as to represent respective symbols of said auxiliary data, characterized in that said signal samples are transform coefficients ($c(i,j)$) obtained by transform coding the information signal and encoded into variable-length code words, the method further comprising the steps of:

- decoding a variable-length code word indicative of a selected coefficient;
- modifying said selected coefficient so as to represent an auxiliary data symbol;
- encoding the modified coefficient into a new variable-length

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code word; and

- replacing the old code word by the new code word;
- wherein said step of replacing the old code word by a new code word is omitted if said replacing causes the length of a given sequence of code words to substantially exceed the original length of said sequence; said old code word being replaceable with a longer code word as long as the length of the given sequence is compensated with a shorter replaced code word so that the length of the given sequence does not substantially exceed the original length of said sequence.

Claim 2 (Canceled)

3. (Original) A method as claimed in claim 1, further including a step of inserting dummy bits in a field provided by the format according to which the signal has been coded, if said replacing causes the length of a given sequence of code words to substantially fall short of the length of the original sequence.

4. (Currently Amended) A method as claimed in ~~claim 2~~ claim 1,

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wherein the auxiliary data includes data words each represented by plural combinations of data symbols.

5. (Currently Amended) A method as claimed in ~~claim 2~~ claim 1, wherein said given sequence is a slice of an MPEG video signal.

6. (Currently Amended) A method as claimed in ~~claim 2~~ claim 1, wherein said given sequence is a transport packet of an MPEG transport stream.

7. (Currently Amended) A method as claimed in ~~claim 2~~ claim 1, wherein said given sequence is the sequence of code words between clock reference time stamps which are accommodated in the signal.

8. (Original) A method as claimed in claim 1, wherein the selected coefficient is a differential DC coefficient representing the difference between DC coefficients of successive blocks of coefficients.

9. (Original) A method as claimed in claim 8, wherein the step

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of modifying the selected coefficient comprises adding such a value that the sum of differential DC coefficients of a given series of blocks is not substantially modified.

10.(Original) A method as claimed in claim 8, wherein the series of blocks is a slice of an MPEG video signal.

11.(Original) A method as claimed in claim 1, wherein said data symbols are represented by modulo-n values of the selected coefficients, where n is a predetermined integer.

12.(Original) A method as claimed in claim 11, wherein $n=2$.

Claims 13-15 (Canceled)

16.(original) A method of recording an information signal on a storage medium, comprising the steps of:

- receiving a compressed information signal having signal samples in the form of transform coefficients obtained by transform coding the information signal and encoded into variable-length code

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words;

- embedding auxiliary data in said information signal, using a method as claimed in claim 1;
- recording said information signal with embedded auxiliary data on said storage medium.

17. (Currently Amended) An arrangement for embedding auxiliary data in an information signal, comprising means for modifying selected signal samples so as to represent respective symbols of said auxiliary data, characterized in that said signal samples are transform coefficients obtained by transform coding the information signal and encoded into variable-length code words, the arrangement further comprising:

- means for decoding a variable-length code word indicative of a selected coefficient;
- means for modifying said selected coefficient so as to represent an auxiliary data symbol;
- means for encoding the modified coefficient into a new variable-length code word; and
- means for replacing the old code word by the new code word,

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- wherein said ~~step of means for replacing~~ are configured to omit replacing the old code word by a the new code word is omitted if said replacing causes the length of a given sequence of code words to substantially exceed ~~the original length~~ an original length of said sequence, said means for replacing being further configured to replace original code words with longer code words as long as the length of the given sequence is compensated with shorter replaced code words so that the length of the given sequence does not substantially exceed the original length of said sequence.

Claim 18 (Cancelled)

19. (Original) An arrangement for recording an information signal on a storage medium, comprising:

- means for receiving a compressed information signal having signal samples in the form of transform coefficients obtained by transform coding the information signal and encoded into variable-length code words;

- means for embedding auxiliary data in said information signal, using an arrangement as claimed in claim 17;

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- means for recording said information signal with embedded
auxiliary data on said storage medium.

Claims 20-21 (Canceled)